USDA Forest Service - Southern Research Station - 320 Green Street Athens GA 30602 - http://www.srs.fs.fed.us/disturbance



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# utreach Activities:

New Note that the Composition of the long-term burn research plots on the Francis Marion National Forest to a group of researchers from federal agencies and universities, and of National Forest managers. He discussed the effect of different burning frequencies on understory composition, fuel loads, and tree regeneration.



 Richard Reitz delivered an invited one-day workshop on community advising

at the National Wildland/Urban Interface Conference, itiled "Backyards and Beyond." The conference, sponsored by National Wildfire Coordinating Group's Wildland/Urban Interface Fire Working Icam, contained 65 educational sessions consolidated under five educational tracks. The purpose of the conference was to gather fire and emergency managers, homeowners, and community leaders to explore solutions to protect lives, property, resources from wildland fire in the wildland/urban interface.



Paul Spillman and his mother stopped by the Hitchitti

 Paul Spillman from Boy Scout Troup 170 completed his Eagle Bade with a project on the Hitchiti. He and his mother came by to visit and see the results of his project.

Three organized groups, totaling 48 people visited the Brender Forest during October. These

groups included Abraham Balwin Agriculture College Forestry Silviculture Class, Mercer University Ecology

# Technology Transfer:



Joe O'Brien installing research plot on the Abaco Forest, Bahamas.

- · Joe O'Brien and Mac Callaham participated in a wildland fire-fighting training session in Marsh Harbour, Bahamas organized by The Nature Conservancy, with cooperation from The Bahamas National Trust, Forest Service International Program, and the Abaco Friends of the Environment. These training sessions were attended by fire fighters from fire departments all across the Bahamas who are increasingly faced with fighting "bush-fires" along the wildlandurban interface. The program included a strong emphasis on the use of prescribed fire to reduce hazardous fuel levels in forested areas. O'Brien and Callaham used the opportunity to install research plots in the stands where the training fires took place, with the objective of developing base-line ecological data for use in developing a management plan for the extensive pine forests on the island.
- Scott Goodrick and John Stanturf attended the Drought 2003 meeting in Freiburg, Germany. Scott presented a paper "Spatial modeling of



Scott Goodrick discusses drought forecasting with Iben Margrete Thomsen of Denmark at the Drought 2003 Conference in Freiburg.

drought using artificial neural networks" (coauthored by Yong Liu and John Stanturf). John presented a poster "Modeling ecosystem water stress and fire risk under drought conditions" (authored by Liu, Stanturf, and Goodrick) and moderated sessions on Pests, Diseases, Fire, and Ozone, and on Tree Nutrition and Root Dynamics. John served on the Scientific Advisory Committee for the meeting. The 2003 Drought was the worst of the century in parts of Europe and gave a foretaste of the weather patterns expected to develop due to climate change. Several presenters showed that the total annual precipitation was close to the norm, but the summer months were hotter and drier. Field trips to the Black Forest (Schwarzwald) in Germany and the Harth Forest nearby in France (across the Rhine Valley) brought home the extent of the damage, with levels of salvage logging approaching and exceeding the allowable annual cut in public forests.

• Ralph DiCosty presented a poster at the Soil Science Society of America annual meeting utreach

Activities: Continued

call and the Department of Human Resource Youth Group from Warm Springs, Georgia. Tim Lorimore with the Georgia Forestry Association came by to look at Longleaf plantings.

Approximately 33 visitors came by the office at the Brender Forest for information and 98 people signed the register at the Hitchiti Interpretive Trail.



# Technology Transfer:

in Seattle, "Fifty years of prescribed burning: effects on soil organic matter composition and podzolization in a Spodosol soil profile in the Southeastern United States" (authored by DiCosty and Stanturf). The poster presented preliminary work by DiCosty and Stanturf on prescribed fire's effects on carbon, "black carbon" (charcoal), extractable phosphorus, and iron and aluminum oxides. The poster was also presented, by invitation, at the Fire Science in Forestry Management Workshop, in Charleston, SC.

- Alex Clark spoke to a group of approximately 30 MeadWestvaco District Foresters in Summerville, SC, on the impact of silvicultural practices on wood properties of loblolly pine.
- · Clark attended the IUFRO Conference 'Forest Genetics and Tree Breeding in the Age of Genomics: Progress and Future' in Charleston, SC. Alex moderated the session on Genetics and Wood Quality Improvement.
- Clark attended the Wood Quality Consortium Fall Meeting hosted by MeadWestvaco in Summerville, SC. Alex, co-director of the Consortium, made two presentations at the meeting; one on the impact of competition control and genetics on wood properties of loblolly pine and the other on the effect of competition control and mid-rotation fertilization on wood specific gravity of slash and loblolly pine.
- · John Stanturf presented a poster "Threeyear growth response of four clones of eastern cottonwood (Populus deltoides Bartr. ex Marsh.) to fertigation" (authored by Stanturf, Bland, Samuelson, Leininger, and Burke), reported on short-rotation woody crops activity in the South, and moderated a session at the Short Rotation Woody Crops Operations Working Group Biennial Meeting in Charleston. He was on the planning committee and will be guest coeditor, with Mark Coleman, of a special issue of Biomass and Bioenergy with selected papers from the meeting.

 Ken Outcalt gave an invited oral presentation on: Long-term prescribed burning in the Southern US at the Fire Science in Forestry Management Workshop in Charleston, SC. He also presented an invited poster titled: Fire and Fire Surrogate Study in the Southern Coastal Plains.





- · Outcalt will attend the "Fire Research and Forest Management in the Coastal Plain" meeting at J.W. Jones Ecological Research Center in Newton, GA (www.jonesctr.org) on December 16-17, 2004.
- · Richard Reitz has been invited to deliver a one-hour workshop on Community Advisor at the International Association of Fire Chiefs Wildland Fire 2005 conference, February 16-18, 2005, Albuquerque, NM.



## Meetings/Reports:



Chief Dale **Bosworth** 

· Mac Callaham attended the Centennial Forum on Forest Management and Research in Asheville, NC. The program of the Forum consisted of presentations from several dignitaries from across the southeast as well as from

several folks from Washington including Chief Bosworth. All attendees of the Forum were tasked with identifying past accomplishments of the Forest Service and to discuss the major challenges facing the Agency today and in the future.

- Ken Outcalt met with Dale Pancake, Assistant Director Solon Dixon Forestry Education Center, at Andalusia, AL, to discuss the progress of the Fire and Fire Surrogate study at the Center. They began planning to host the next annual Fire and Fire Surrogate meeting in October 2005, and developed a tentative agreement for extending the Fire and Fire Surrogate research at the Center for an additional 5 years.
- · Ralph DiCosty reports some highlights from the joint meeting of the Soil Science Society of America and the Canadian Soil Science Society, held in Seattle. R. Potter et al. (University of Georgia and Florida State University) presented a poster suggesting that the availability of soil calcium in burned forests is positively correlated with the success of red cockaded woodpecker

populations. Bob Powers et al. (USDA-FS and UC-Davis) presented a series of papers evaluating whether forest fuels can be reduced while conserving ecosystem carbon on sites in California. A preliminary finding of interest was that soil respiration did not differ substantially across plots that differed widely in organic matter content and soil temperature. Mary Firestone gave the F.E. Clark Distinguished Lecture on Frontiers in Biology, in which she asserted that measurements of gross nitrogen cycling processes reveal much more than measurements of net processes. For example, soil nitrate may be low in concentration because the rates of nitrate production and nitrate uptake are simultaneously high – measurement of only the extractable nitrate pool may fail to detect the rapid activity actually taking place.

- · Gary Achtemeier attended a meeting on Air Quality-Critical Loads at EPA in Research Triangle Park, NC. The major purpose of the meeting was to develop an interagency agreement between the Forest Service and the Environmental Protection Agency on an Air Quality Forecasting Initiative. Gary learned that EPA has already awarded \$100K to the unit for the Southern High Resolution Modeling Center to install BlueSky/Rains, and for an initiative to build a fire activity database for the Southeast. This will require finding ways to work with states to bring fire activity data online. The award is apparently slowly making its way through the Washington bureaucracy. EPA is interested in working with states to help fund conversions from existing systems to a digital system. More information will be forthcoming during a conference call scheduled for late November.
- · In January, Mac Callaham will attend an information meeting in Livermore California for the Enriched Background Isotope Study. The study is based in Oak Ridge TN, and Callaham is responsible for a research project involving earthworms and C movement in soil.

# Partnerships:

· Ken Outcalt met with Carl Trettin, Project Leader 4103, and others at the Santee Experimental Forest near Cordesville, SC to discuss the Santee Fire plots. The meeting was to exchange ideas on future of plots, possible research, and coordination of sampling protocols between projects for the Santee and Tiger Corner



## 📘 Science Highlight:

Assessing the severity of upcoming fire seasons is critical to efficiently allocating suppression resources at both the regional and national scale. Previous attempts at forecasting fire season severity have focused on directly relating the climatic conditions to some measure of fire activity (number of fires or acres burned). While at first this appears to be a natural way to evaluate the connection, the data can be skewed by effective suppression. A better approach is to examine the relationships between the climatic indicators (i.e. ENSO, North Pacific oscillation, etc) and factors that contribute to a severe fire season. Researchers at the Florida Climate Center, led by Dr. James O'Brien, and project scientist Scott Goodrick have identified links between major climate patterns and environmental indicators of severe wildfire conditions. Using relationships between ENSO and temperature/precipitation patterns, seasonal forecasts of the Keetch-Byram Drought Index (KBDI) with lead times out to six months were produced for each county in the coastal plain of Florida, Georgia and Alabama. In 2002, the first year of these forecasts, the Florida county level forecasts were accurate to within one standard deviation for 91% of the counties for the one month forecast, 84% of the counties for the three month forecast and 65% of the counties for the six month forecast. In 2003 and 2004, the forecast methodology was expanded to encompass the coastal plain sections of Georgia and Alabama and an evaluation of these forecasts is currently underway. In addition, we are exploring the utility of these forecasts to other applications such as harvest scheduling. http://www.coaps. fsu.edu/climate center/wildfire.html



# 關 Funding:

- Wimberly and Stanturf re-submitted proposal to JFSP for "Best Management Practices for fuels treatment in loblolly pine forests: An assessment of opportunities, constraints, and environmental
- Joe O'Brien and others re-submitted proposal to JFSP for a Pine Rocklands BMP.
- Staff is preparing other JFSP proposals.

From the Cover (Masthead) - Leaves of Southern Pine Forests.



frosty, spring, fall

Maple (Acer frosty, spring, fall

frosty, spring, fall falcata) leaves, frosty, spring, fall

## 📗 Personnel News:

 Kim Crider is currently finishing her second semester at University of Montana in Missoula. She is working with Elizabeth Crone and has just finished a preliminary proposal for her Ph.D. research, Landscape heterogeneity and invasion dynamics of Senecio jacobaea in Northwest Montana. The project will investigate the importance of management and disturbance on the dynamics of tansy ragwort at both the population and landscape levels. The project sites are located in northwest Montana, in the Kootenai National Forest.



# News from Around the Region:

· International Paper announced the intent of management to re-locate the Forest Resources business, part of their Forest Products Group, to Memphis, TN. The Forest Resources headquarters in Savannah was recently consolidated following the acquisition of Champion and Union-Camp by International Paper. Approximately 200 jobs are at issue, with about 150 to be moved (Source: Savannah Morning News)



The growing concern in insurance industry for increased losses from wildfires has spurred

development of a new wildfire prediction model for the insurance industry. EQECAT, an Oakland, CA based company, has released a new Wildfire model that takes into account key factors such as fuel load -- type of fuel and density -- wind speed and direction, humidity, and terrain features to determine fire ignition probabilities and the rate of fire growth. Fire suppression capability is based upon known water supplies, air tankers, site access for firefighters and equipment and overall fire fighting resources in each area. The new model also takes into account differences in the vulnerability of structure types, such as homes with a wood-shake versus fire-retardant roof, as well as distance from brush-clearing. The EQECAT model produces a fully probabilistic loss non-exceedance distribution, per occurrence and annual aggregate, along with an expected annual loss. Policies can be analyzed at the street address level of detail and results viewed by policy-site, by geographic area, such as ZIP code, county or state, or the insurer's overall portfolio. / (Source: Businesswire)

• The Robert C. Williams American Museum of Papermaking at Georgia Tech announced

the creation of The George W. Mead Education Center, made possible through a gift from the Mead Witter Foundation of Wisconsin Rapids, Wisconsin. The new education center will allow visitors to gain an increased appreciation for paper through expanded science and technology exhibitions, a new hands-on papermaking classroom, and a new research area for scholars interested in the history of papermaking. The Robert C. Williams American Museum of Papermaking is located in the Institute of Paper Science and Technology at Georgia Tech, 500 10th Street, NW in Atlanta. The Museum features the most comprehensive collection of paper and paper-related artifacts in the world, tracing the history, art, and science of papermaking from ancient forerunners of paper to modern technological advances. http://ipst.gatech.edu/ amp (Source: PRWire)



 The National Park Service released its

National Park System Advisory Board report, entitled "National Park Service Science in the 21st Century." The Advisory Board report is an outgrowth of the National Park Service's Natural Resource Challenge program, which was initiated in 1999 by Congress at the request of the NPS to improve management and protection of natural resources in the National Park System. In addition to increasing the NPS's natural resource budget from about \$100 million per year to \$200 million per year, the Challenge includes a range of technical natural resource management strategies to provide improved science for parks. In May 2002, NPS Director Mainella asked her Advisory Board to review the Service's Natural Resources Challenge program and offer recommendations concerning future directions for science and scientific resource management in the national parks. On March 10, 2004, Advisory Board Chairman Douglas P. Wheeler transmitted the final report to Mainella. The report, says that while the park service has long excelled in recreational tourism, "over the years, science has not fared well." If the service is to maintain its properties, unimpaired, for future generations, the report says, "mastering the science required to maintain ecological integrity is central." Among other things, the panel recommends greater efforts to inventory, monitor, and preserve park ecosystems, in particular strengthening the service's in-house capacity "to manage research and deal with cooperating scientific organizations and research efforts." The report says this kind of scientific strength is crucial for "any meaningful effort to preserve ecological resources in the National Park System." The report is available at www. nature.nps.gov/scienceresearch/index.htm



# Publications

FY 2005 Publications: (\* denotes new publication this month)

Refereed Journals and Book Chapters

\*Haight, Robert G., Cleland, David T., Hammer, Roger B., Radeloff, Volker C., Rupp, T. Scott. 2004. Assessing fire risk in the wildland-urban interface. Journal of Forestry 102(7): 41-48.

\*Hoadley, Jeanne L., Westrick, Ken, Ferguson, Sue A., **Goodrick, Scott L.**, Bradshaw, Larry, Werth, Paul. 2004, The Effect of Model Resolution in Predicting Meteorological Parameters Used in Fire Danger Rating. J. Applied Meteorology, 43(10): 1333-1347.

**Stanturf, J.A.**, Conner, W.H., Gardiner, E.S., Schweitzer, C.J., and Ezell, A.W. 2004. Recognizing and overcoming difficult site conditions for afforestation of bottomland hardwoods. *Ecological Restoration* 22(3): 183-193. (Counted in last year)

#### Proceedings and Reports

\*Fowler, C. 2004. Fire education programs in the Southern United States. Encyclopedia of Southern Fire Science http://www.forestencyclopedia.net. USDA Forest Service, Southern Research Station.

\*Fowler, C. 2004. Human Health and Forest Fires in the Southern United States. Encyclopedia of Southern Fire Science http://www.forestencyclopedia.net. USDA Forest Service, Southern Research Station.

\*Fowler, C. 2004. Effects of Fire on Cultural Resources in the Southern United States. Encyclopedia of Southern Fire Science http://www.forestencyclopedia.net. USDA Forest Service, Southern Research Station.

\*Fowler, C. 2004. A History of Human-Caused Fires in the Southern United States. http://www.forestencyclopedia.net. Encyclopedia of Southern Fire Science. USDA Forest Service, Southern Research Station.

\*Helmers, J. and C. Fowler. 2004. Fire in the Wildland-Urban Interface. Encyclopedia of Southern Fire Science http://www.forestencyclopedia.net. USDA Forest Service, Southern Research Station.

Myers, R., **Wade**, **D**., and Bergh, C. 2004. Fire management assessment of the Caribbean pine (*Pinus caribea*) forest ecosystems on Andros and Abaco Islands, Bahamas. GFI Publication no. 2004-1. The Nature Conservancy, Arlington, VA. 18 pp.

**Reitz, Richard D.** and Geissler, George L. 2003. Community advisor—Firewise. In Proc. Society of American Foresters National Convention, 25-29 October 2003, Buffalo, NY. P. 63-72.

#### Abstracts and Posters

**DiCosty, R.**, Kelley, S., Rials, T., **Stanturf, J.A.** 2004. Soil black carbon levels and soil organic matter quality under interval prescribed burning in the southeastern United States. Eurosoil 2004, 4-12 September, Freiburg, Germany [Poster]

**Liu, Y., G. Achtemeier, and S. Goodrick**. 2004. Air quality effects of prescribed fires simulated with CMAQ. The Third Models-3 Workshop, Chapel Hill, NC, 18-20 Oct 2004. (Extended abstract, paper 6.5, pp 1-4, available from http://www.cmascenter.org/html/2004\_workshop/abstracts\_presentations.html.

\*Goodrick, Scott, Liu, Yongqiang, and Stanturf, John. 2004. Spatial modeling of drought using artificial neural networks. In Impacts of the Drought and Heat in 2003 on Forests, Berichte Freiburger Forstliche Forschung, Heft 57: 18.

\*Liu, Yongqiang, Stanturf, John, and Goodrick, Scott. 2004. Modeling ecosystem water stress and fire risk under drought conditions. In Impacts of the Drought and Heat in 2003 on Forests, Berichte Freiburger Forstliche Forschung, Heft 57: 56.

\*DiCosty and Stanturf . 2004. Fifty years of prescribed burning: effects on soil organic matter composition and podzolization in a Spodosol soil profile in the Southeastern United States. Soil Science Society America Annual Meeting Abstracts.

# Upcoming Events:

Upcoming Events:

#### 2004

Dec 8-10	Bioenergy and Biobased Products from Sustainable Forest Management in the Southern United States Conference; Houston, Texas http://forestbio
	energy.tamu.edu/brochure_detailed/brochure02.html

Dec 13-17 Fall 2004 American Geophysical Union (AGU) Meeting In San Francisco, CA Ecosystems In Flux: Molecular And Stable Isotope Assessments Of Soil Organic Matter Storage And Dynamics http://www.agu.org/meetings/fm04/search\_detail.php?sessid=274

Dec 16-17 SOFOR GIS 2004, Athens, GA; http://www.gactr.uga.edu/conferences/forestry/index.html

#### 2005

Jan 30-Feb 4 9th International Symposium on Soil and Plant Analysis, Cancun, Mexico http://www.spcouncil.com/ISSPA%20Page/Cancun20033.pdf.

\*Feb 16-18 Wildland Fire 2005 and National Fire Plan Conference, Albuquerque, NM; http://www.iafc.org/conferences/wildland/index.asp

Feb 28-Mar 4 13th Biennial Southern Silvicultural Research Conference, Memphis http://www.srs.fs.usda.gov/oaks/osc

Mar 13-16 Emerging Issues Along Urban/Rural Interfaces: Linking Science and Society; Atlanta, IUFRO 6.00; http://www.sfws.auburn.edu/urbanru ralinterfaces/

Mar 21-24 USDA Symposium Greenhouse Gases In Agriculture and Forestry: Refining Knowledge and Building Tools, Baltimore, MD; http://soil carboncenter.k-state.edu/conference

Mar 29-Apr 6 Global Soil Change: Time-Scales and Rates of Pedogenic Processes, Montecillo, Mexico. http://www.iuss.org/popup/Mexico%202005.htm

Apr 25-27 Biennial Georgia Water Resources Conference, Athens; http://ga.water. usgs.gov/gwrc/callforpapers.html

May 11-13 Conference on Remote Sensing and Fire, to be held at George Mason University in Fairfax, VA.

Jun 20-24 5th International Conference on Forest Vegetation Management, IUFRO Research Group 1.13.00 Forest Vegetation Management.

Corvallis, Oregon, USA. Abstracts for selection submitted on-line by November 30, 2004. http://outreach.cof.orst.edu/icfvm/index.htm

Jun 6-10 National Silviculture Workshop, "Restoring fire-adapted forested ecosys tems" Granlibakken Conference Center in Tahoe City, California

Jul 18-22 AFFORNORD, Conference on Effects of Afforestation on Ecosystems, Landscape & Rural Development, Reykholt, Iceland; http://www.skogur.is

Aug 8-13 IUFRO World Congress, Brisbane, Australia. Stanturf to attend. http://www.iufro2005.com

Sep 9-10 Pre-Conference Workshop in association with Pedometrics 2005 Conference, Gainesville, FL. http://conference.ifas.ufl.edu/pedometrics/#optional

Sep 10-12 European Forestry Institute annual conference and Scientific Seminar "Multifunctional Forest Ecosystem Management in Europe: Integrated ap proaches for considering the temporal, spatial and scientific dimensions" Centre Tecnològic Forestal de Catalunya (CTFC), Barcelona, Spain

Sep 12-14 Pedometrics 2005: Frontiers in Pedometrics, Naples, FL. http://conference.ifas.ufl.edu/pedometrics/

Sep 12-18 Society for Ecological Restoration 17th International Conference, Zaragoza, Spain. http://www.ser.org/events.asp?EventID=9

\*Oct 17-19 23rd Tall Timbers Fire Ecology Conference "Fire In Grassland and Shrubland Ecosystems", Bartlesville, OK; http://www.talltimbers.org

# Upcoming Events:

Oct 19-23 Society American Foresters Annual Meeting, Ft. Worth, TX

Nov 6-10 Soil Science Society of American Annual Meeting, Salt Lake City, UT

\*Nov 15-17 Fire in Eastern Oak Forests: Delivering Science to Land Managers; Columbus, OH; Contact Matt Dickinson, mbdickinson@fs.fed.us

2006

Jul 9-15 18th World Congress of Soil Science, in Philadelphia, PA http://www.18wcss.org

Oct 25-29 Society American Foresters Annual Meeting, Pittsburgh, PA



The Forest Research Institute of Baden-Wuerttemburg, site of the first day of the Drought 2003 Conference.



Salvage logging in a stand damaged by drought and bark beetles in the Black Forest near Freiburg.

# GPRA GPRA GPRA

# **GPRA**

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# GPRA -Accomplishment

Category	FY 2004	FY 2005
	Total	Total
Number of Refereed Journal Publications	20	2
Number of Non-Refereed Publications (include abstracts)	89	12
Number of Publications (refereed + non-refereed)	109	14
Number of Tours	41	10
Number of Short Courses/Training	20	6
Number of Invited Presentations to Scientific Organizations	12	2
Number of Invited Presentation to Lay Organizations	30	7
Volunteer Presentations to Scientific Organizations (non-GPRA	42	10
Number of Technology Transfer Activities (other than above)	105	43
Outside Funding	\$2,610,574	\$628,307

#### SRS-4104 Project Leader's Report

John Stanturf - Editor Lynne Breland - Technical Writer Patricia A. Outcalt - Production, Design and Layout

